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Remarks

Support for the above-requested amendments to claims 1 and 21 is found at least in paragraph [0026]. Support for the amendments to claim 11 is found at least in paragraph [0028]. Claim 12 has been amended for grammatical reasons. Claim 26 has been amended to recite a sugar binder to correspond to amended claim 11. Claim 9 has been canceled without prejudice. Claims 3, 12, and 17-20 were canceled without prejudice in a previous response. Applicant submits that these amendments are proper despite the finality of the Office Action because the amendments place the application in condition for allowance. No question of new matter arises and entry of the amendments is respectfully requested.

Claims 1, 4-8, 10-11, 13-16, 21-24, and 26 are before the Examiner for consideration.

Rejection under 35 U.S.C. §103(a)

The Examiner has rejected claims 1, 2, 4-6, 8-10, 21 and 22 under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 5,766,541 to Knutsson, *et al.* ("Knutsson") in view of U.S. Patent No. 2,288,072 to Collins ("Collins"). The Examiner asserts that Knutsson teaches a method for making preforms from glass fiber strands where the glass fibers are texturized by separation to form a wool-type product prior to entry into the mold. The Examiner makes note that Knutsson makes reference by incorporation to U.S. Patent No. 4,569,471 to Ingemansson, *et al.* which assertedly teaches that the texturized wool fiber may travel through a hose prior to being fed into the mold. It is asserted that the binder, water, and glass fibers of Knutsson are fed into the mold and the mold is heated to cure the binder. It is asserted that Knutsson discloses that the binder preferably includes about 2-10% by weight of the preform. The Examiner admits that Knutsson does not disclose that the binder is sugar in powdered or granulated form. In this regard, Collins is cited for assertedly disclosing a method for making a fibrous product where a powdered sugar binder is disclosed.

Initially, Applicant submits that claim 9 has been canceled without prejudice, thereby rendering the rejection to this claim 9 moot.

In response to this rejection, Applicant respectfully directs the Examiner's attention to the amendments made to independent claims 1 and 21 and submits that claims 1 and 21, as amended, define methods of forming a preform that are not taught or suggested within Knutsson and Collins, either alone or in combination. Knutsson teaches a method and

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apparatus for forming a preform from glass fiber strand material for use in engine exhaust mufflers. (*See, e.g.*, column 1, lines 40-43 and the Abstract). The preform is formed by feeding continuous glass fiber strand material into a mold. (*See, e.g.*, column 3, lines 50-52). As the strand material is fed into the mold, the glass fibers forming the strand separate from each other and form a wool-type product. (*See, e.g.*, column 3, lines 52-55 and column 8, lines 48-50). A thermoplastic or thermoset binder material and water is then added to the preform. (*See, e.g.*, column 3, lines 55-56 and 59-60 and column 11, lines 41-46). The binder and the glass strand material may be added to the mold separately or simultaneously. (*See, e.g.*, column 8, lines 50-51 and 58-60). Once the mold contains the desired amount of wool-type material, the molds are compressed to compact the wool-type material to a desired density. (*See, e.g.*, column 9, lines 19-21). After compression, heated air is passed through the mold to cure the binder. (*See, e.g.*, column 9, lines 60-62). The female and male portions of the mold are separated and the cooled preform is removed. (*See, e.g.*, column 10, lines 21-28).

Collins teaches a method and apparatus for producing bonded products in any desired shape. (*See, e.g.*, column 2, lines 19-28). Fibers are descended from a fiberizing apparatus into a forming hood where they are deposited onto a belt to form a loose mat. (*See, e.g.*, column 3, lines 5-17). As the fibers accumulate on the belt, they may be sprayed with a suitable lubricating oil such as oil or a stearic acid emulsion. (*See, e.g.*, column 3, lines 17-22). To evenly apply a binder, the binder is applied alternatively to one side of the mat and then the other side. (*See, e.g.*, column 2, lines 33-37). Liquid or solid binders in subdivided form may be applied. (*See, e.g.*, column 2, lines 41-43). The most successful results are achieved with powdered asphalt, or asphalt or clay mixtures. (*See, e.g.*, column 2, lines 43-48). Other binders including sugars may be used. (*See, e.g.*, column 2, lines 48-52). An air circulating system may be used for dry binders such as powdered asphalt, clay, sugars, and the like. (*See, e.g.*, column 2, lines 56-62).

Applicant respectfully submits that neither Knutsson nor Collins teach or suggest heating the preform to a temperature sufficient to at least partially caramelize the sugar as claimed in claims 1 and 21. Knutsson teaches heating to cure the binder and bind portions of the strand material forming the compacted wool product. (*See, e.g.*, column 1, lines 52-59 and column 9, lines 60-62 of Knutsson). Knutsson further teaches that the temperature of the hot air passing through the molds may be from 100-400 °C (*i.e.*, 212-752 °F). (*See, e.g.*,

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column 9, line 66 to page 10, line 1). As shown in Attachment A, the initial caramelization of common saccharides range from approximately 110 °C to approximately 180 °C. (See www.food-info.net/uk/colour/caramel.htm). Although Knutsson teaches a temperature range that includes temperatures that would caramelize the sugar, Knutsson teaches heating to a curing temperature, which, Applicant submits, is higher than the caramelization temperatures of sugars. Applicant submits that a curing temperature would melt the sugar binder. For example, Knutsson teaches heating to a temperature to cure a non-sugar binder, *i.e.*, a phenolic binder, whose curing temperature is from about 300-400 °C (572-752 °F). Such temperatures are well beyond the caramelization temperatures of sugars. Thus, it is respectfully submitted that Knutsson does not teach or suggest at least partially caramelizing the sugar binder as claimed in claims 1 and 21. Additionally, it is submitted that Knutsson does not teach the use of sugar, as a binder or otherwise. Accordingly, Knutsson cannot teach or suggest heating the preform to a temperature sufficient to caramelize a sugar binder.

Assuming, *arguendo*, that one of skill in the art were to look to Collins for a suitable heating temperature, Collins teaches subjecting pyrolyzing heat to the binder-containing mat to a temperature from 700-800 °F (*i.e.*, 371-426 °C). (See, *e.g.*, column 3, lines 43-62 and column 5, lines 7-9). Such temperatures are far beyond the caramelization temperature of sugars. As such, it is respectfully submitted that the combination of Knutsson and Collins would not result in the inventions claimed in claims 1 and 21.

Additionally, it is respectfully submitted that the prior art references teach away from the inventions claimed in amended independent claims 1 and 21. In both Knutsson and Collins, the disclosed temperatures are higher than the temperatures needed to at least partially caramelize a sugar binder. In particular, Knutsson teaches curing the binder, which would melt the sugar, and Collins teaches a pyrolyzing temperature far above a caramelizing temperature. Further, Applicant submits that caramelized sugar creates a stronger bond between the glass fibers than a bond formed by the re-crystallization of melted sugar. (See, *e.g.*, paragraph [0026] of the present application). Thus, Applicant submits that one of skill in the art would be led away from heating a preform to a temperature sufficient to at least partially caramelize a sugar binder (and not melt the sugar binder) based on the teachings of Knutsson and Collins.

In addition, Applicant submits that there is no motivation for one of skill in the art to arrive at the inventions claimed in claims 1 and 21 based on the disclosures of Knutsson

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and/or Collins. To establish a *prima facie* case of obviousness, there must be some motivation, either within the reference or in the knowledge of those of skill in the art, to modify the reference or combine the references' teachings, there must be a reasonable expectation of success, and the prior art references must meet all of the claim limitations. (See, e.g., *Manual of Patent Examining Procedure*, Patent Publishing, LLC, Eighth Ed., Rev. 3, August 2005, §2142). It is respectfully submitted that one of ordinary skill in the art would not be motivated to arrive at the methods of forming a preform for a muffler that includes heating the preform to a temperature sufficient to at least partially caramelize the sugar based on the teachings of Knutsson and Collins because both Knutsson and Collins teach heating the binders to a temperature above the temperatures required to caramelize the sugars (e.g., a curing temperature). As a result, one of ordinary skill in the art would not be motivated to heat the preform to a temperature sufficient to at least partially caramelize the sugar based on the teachings of Knutsson and/or Collins. Without some teaching or suggestion, there can be no motivation, and without motivation, there can be no *prima facie* case of obviousness.

In view of the above, Applicant respectfully submits that amended claims 1 and 21 are patentably distinguishable over Knutsson and Collins, either alone or in combination. Because claims 2, 4-6, 8, and 10 are dependent upon independent claim 1 and claims 22 and 24 are dependent upon claim 21, and because claims 1 and 21, as discussed above, are not taught within the Examiner's cited references, claims 2, 4-6, 8, 10, 22, and 24 are also submitted to be non-obvious and patentable. Thus, Applicant respectfully submits that claims 1-2, 4-6, 8, 10, 21-22, and 24 are not obvious over Knutsson in view of Collins.

Rejection under 35 U.S.C. §103(a)

The Examiner has rejected claims 7 and 23 under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 5,766,541 to Knutsson, *et al.* ("Knutsson") in view of U.S. Patent No. 2,288,072 to Collins ("Collins"), and further in view of U.S. Patent No. 5,317,037 to Golden, *et al.* ("Golden"). The Examiner asserts that the combination of Knutsson and Collins does not expressly teach the melting point of the powdered sugar. In this regard, Golden is cited for teaching that sugars can be used as binders and that the sugars have a melting point in the range of 120 °C (248 °F) to 175 °C (347 °F). The Examiner asserts that it would have been obvious to one of skill in the art to employ a sugar such as sucrose,

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fructose, or dextrose as the sugar binder in the method of Knutsson for the purpose of employing readily available and well-known sugars as effective binders.

In response to this rejection, Applicant respectfully directs the Examiner's attention to the amendments made to independent claims 1 and 21 and to the arguments set forth above with respect to the rejection of claims 1, 2, 4-6, 8-10, 21, 22, and 24 under 35 U.S.C. §103(a) to Knutsson in view of Collins and submits that claims 1 and 21, as amended, define methods of forming a preform that are not taught or suggested within Knutsson and Collins, either alone or in combination.

Applicant submits that the preforms of Knutsson and the bonded fibrous products taught by Collins are discussed in detail above, and for purposes of brevity, neither the preforms of Knutsson nor the fibrous products of Collins will be discussed in detail with respect to this rejection.

Golden discloses a melt-moldable composition that disintegrates in the presence of moisture and decomposes or degrades to produce components that are inert or beneficial to the ground. (*See, e.g.*, column 2, lines 24-27 and 48-52). The composition can be shaped into useful articles that have a mechanical strength that is sufficient for its intended use (*e.g.*, golf tees, golf pencils, and clay pigeons), but which allows the article to disintegrate and decompose after it is broken. (*See, e.g.*, column 2, lines 28-32 and column 3, lines 11-21). The composition includes a binder that is preferably a natural substance such as sugar. (*See, e.g.*, column 2, lines 56-60). The natural binder is present in the composition in an amount from 30-98% by weight binder. (*See, e.g.*, column 2, line 68 to column 3, line 1). Water or synthetic polymers may be used together with the natural binders and chemical additives may be added to accelerate the decomposition of the article. (*See, e.g.*, column 2, lines 60-68 and column 3, lines 31-38). The composition further includes biodegradable reinforcing fibers, preferably cellulosic fibers from wood pulp, cotton, linen, viscose rayon, and sisal materials. (*See, e.g.*, column 3, lines 39-42). Inorganic fibers such as wollastonite and glass fibers may also be employed in the composition. (*See, e.g.*, column 2, line 55 and column 3, lines 44-45).

Applicant submits that the combination of Knutsson and Collins do not teach or suggest heating the preform to a temperature sufficient to at least partially caramelize the sugar as claimed in claims 1 and 21. As discussed above, Knutsson teaches heating the preform to cure the binder by passing hot air through the mold at a temperature from 100-400

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°C (*i.e.*, 212-752 °F). (*See, e.g.*, column 9, line 66 to page 10, line 1). Knutsson teaches heating to a temperature to cure a non-sugar binder, *i.e.*, a phenolic binder, whose curing temperature is from about 300-400 °C (572-752 °F). Accordingly, Applicant submits that Knutsson teaches heating the preform to temperatures that are above the caramelization temperatures of common sugars, and does not teach or suggest at least partially caramelizing the sugar as required by claims 1 and 21. Collins is silent with respect to heating a preform to a temperature sufficient to at least partially caramelize the sugar binder. Although Golden teaches the use of a sugar as a binder, Golden is silent as to any teaching or suggestion of heating the sugar to the point of caramelization. Golden specifically teaches melting and molding the components into useful articles. (*See, e.g.*, column 3, lines 6-9). Thus, Applicant submits that Golden teaches away from the caramelization of sugars and fails to make up for the deficiencies of Knutsson and Collins, namely, heating the preform to at least partially caramelize the sugar binder.

Further, Applicant submits that there is no motivation for one of skill in art to arrive at the inventions claimed in claims 1 and 21 based on the disclosures of Knutsson, Collins, and/or Golden. As discussed above, there must be some motivation to inspire one ordinarily skilled in the art to modify or combine the references and arrive at the presently claimed invention. Applicant respectfully submits that one of skill in the art simply would not be motivated to arrive at the methods of forming a preform for a muffler that includes heating the preform to a temperature sufficient to at least partially caramelize the sugar based on the teachings of Knutsson, Collins, and Golden because the prior art references each teach heating the binders to a temperature above the temperatures for the caramelization of sugars. As a result, one of ordinary skill in the art would not be motivated to heat the preform to a temperature sufficient to at least partially caramelize the sugar based on the teachings of Knutsson and/or Collins and/or Golden. Without some teaching or suggestion, there can be no motivation, and without motivation, there can be no *prima facie* case of obviousness. Additionally, Applicant submits that because none of Knutsson, Collins, or Golden teach or suggest heating a preform to at least partially caramelize the sugar, the combination of the cited references would not result in the presently claimed invention.

Applicant respectfully submits that because claim 7 depends from claim 1 and claim 23 depends from claim 21, and because claims 1 and 23 are not taught or suggested by the combination of Knutsson, Collins, and Golden as discussed above, Applicant submits that

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claims 7 and 23 are also not taught or suggested by Knutsson, Collins, and Golden, in any combination.

In light of the above, Applicant submits that claims 7 and 23 are non-obvious and patentable and respectfully request that this rejection be reconsidered and withdrawn.

Rejection under 35 U.S.C. §103(a)

Claims 11, 15, and 16 have been rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 4,751,134 to Chenoweth, *et al.* ("Chenoweth") in view of U.S. Patent No. 6,319,444 to Kirk ("Kirk") and U.S. Patent No. 4,210,230 to Tyhurst ("Tyhurst"). The Examiner asserts that Chenoweth teaches a method of making a non-woven matrix of glass fibers and synthetic fibers where, when activated by heat, the matrix is controlled such that only selected fibers are bonded to each other. For example, the fibers adjacent to one or both faces of the matrix may be bonded to each other, thereby leaving other fibers unbonded. Additionally, Chenoweth teach that an impermeate film or skin layer may be applied to the surfaces of the matrix/blanket to provide a smooth surface of the product. The Examiner admits that Chenoweth does not teach the employment of continuous glass fibers or how the skin layer is formed.

Kirk is cited for teaching that continuous glass fibers provide advantages of improved strength, higher service temperature, and lower levels of required binder than discrete length glass fibers and employ a heated mold to shape the product as desired.

Tyhurst teaches a method of forming a fiber-reinforced article with a skin layer/gel coating wherein a binder is placed on the internal wall of a mold prior to placing glass fibers into the mold.

The Examiner concludes that it would have been obvious to one of skill in the art to have employed continuous glass fibers as suggested by Kirk in the method of Chenoweth and to have additionally formed the skin layer/gel coating disclosed by Chenoweth by the method disclosed by Tyhurst for the purpose of realizing the advantages of continuous glass fibers disclosed by Kirk and to have effectively formed the skin layer with a smooth finish on all exposed surfaces as suggest by Tyhurst.

In response to this rejection, Applicant respectfully directs the Examiner's attention to the amendments made to independent claim 11 and submits that claim 11, as amended, defines a method of forming a preform that is not taught or suggested within Chenoweth,

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Kirk, and Tyhurst, either alone or in combination. In particular, Applicant has amended claim 11 to include the recitation of claim 12 (*i.e.*, that the binder is a sugar), which was not included in this rejection. Accordingly, Applicant submits that amended claim 11 is not taught or suggested by the Examiner's cited references and respectfully request that the Examiner reconsider and withdraw this rejection.

Notwithstanding the above, Applicant also respectfully submits that the combination of the cited references do not result in the presently claimed invention. Chenoweth teaches a non-woven matrix of mineral fibers and man-made fibers that can be further formed into complexly curved and shaped configurations. (*See, e.g.*, column 1, lines 5-9, column 2, lines 3-5, and the Abstract). The glass fibers and the synthetic fibers are shredded and blended to produce a highly homogenous mixture. (*See, e.g.*, column 3, line 67 to column 4, line 1). A uniform mat or blanket formed of the mixture and having a uniform thickness is then formed. (*See, e.g.*, column 4, lines 2-5 and FIG. 1). The blanket also contains particles of a thermosetting resin that are uniformly distributed in the mat. (*See, e.g.*, column 4, lines 7-10). The thermosetting resin acts as a heat activatable adhesive to bond the fibers together to provide structural integrity to the mat. (*See, e.g.*, column 4, lines 13-16). The thermosetting resin may be partially or fully activated by the application of heat. (*See, e.g.*, column 5, lines 14-17 and 54-62). When the thermosetting resin in the mat is partially activated, the mat can be subsequently processed by heat, by molding, or by other steps to fully activate the previously inactivated thermosetting resin. (*See, e.g.*, column 5, line 67 to column 6, line 5).

Applicant respectfully submits that the method taught by Chenoweth does not include feeding one or more continuous strands of glass fibers into a preform mold. In fact, Chenoweth is silent with respect to a preform mold or of feeding glass fibers into such a mold. According to Chenoweth, a mat of fibers is first formed and the fiber mat may then be subsequently molded. (*See, e.g.*, column 4, line 67 to column 6, line 5). There is no teaching or suggestion of feeding any kind of fiber, particularly a strand of continuous glass fibers, into a mold. If anything, the glass fiber mat is fed into a mold if the thermosetting resin in the glass fiber mat is not completely activated. (*See, e.g.*, column 5, line 67 to column 6, line 5). Thus, Applicant submits that Chenoweth does not teach or suggest the method of forming a preform as claimed in claim 11 in which a binder is placed onto the internal walls of a preform mold, continuous glass strands are fed into the preform, and the binder is cured to bond the glass fibers positioned adjacent to the internal walls.

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The Examiner cites Kirk for teaching (1) the use of continuous glass fibers to provide the advantages of improved strength, higher service temperature, and the use of lower levels of binder than is required for discrete fibers and (2) for employing a heated mold to shape the product as desired. (See page 8, lines 11-14 of the Office Action dated July 17, 2007). Applicant respectfully submits that even if continuous glass fibers were utilized in the method of Chenoweth, there would still be no teaching or suggestion of feeding continuous strands of glass fibers into a preform mold. Applicant submits that if continuous glass fibers were employed in the method of Chenoweth as suggested by the Examiner, the continuous glass fibers would be formed into the disclosed mat according to the method of Chenoweth. With respect to Kirk's teaching of utilizing a heated mold to shape the product, Applicant submits that the product of Chenoweth, namely, a mat formed of glass fibers and synthetic fibers being formed in a mold, adds nothing to meet the feature required in claim 11 of feeding continuous strands of glass fibers into a preform mold.

In addition, the Examiner cites Tyhurst for teaching the application of a binder to the internal wall of a mold prior to placing glass fibers into the mold. Applicant submits that Tyhurst teaches an apparatus that includes a mold unit formed of a pair of mold members. (See, e.g., column 2, lines 49-52). The mold surfaces are first treated with a conventional release mechanism such as polyvinyl alcohol or a silicone. (See, e.g., column 3, lines 4-7). After the release mechanism is applied to the mold surfaces, a fiber-free thermosetting plastic material is applied to completely coat the mold surfaces. (See, e.g., column 3, lines 12-16). Applicant respectfully submits this teaching in Tyhurst does not make up for the deficiencies of Chenoweth, namely, feeding continuous strands of glass fibers into a preform mold.

In view of the above, it is respectfully submitted that the combination of the Examiner's cited references as set forth in the outstanding Office Action do not teach or suggest feeding strands of continuous glass fibers into a preform mold as required by claim 11. Therefore, it is respectfully submitted that claim 11 is non-obvious and patentable. Because claims 15 and 16 are dependent upon independent claim 11, which, as discussed above, is not taught or suggested within the Examiner's cited references, either alone or in combination, claims 15 and 16 are also submitted to be non-obvious and patentable. Thus, Applicant respectfully submits that claims 11, 15, and 16 are not obvious over Chenoweth, Kirk, and Tyhurst. Accordingly, Applicant respectfully requests that this rejection be reconsidered and withdrawn.

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Rejection under 35 U.S.C. §103(a)

The Examiner has rejected claims 12-14 under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 4,751,134 to Chenoweth, *et al.* ("Chenoweth") in view of U.S. Patent No. 6,319,444 to Kirk ("Kirk") and U.S. Patent No. 4,210,230 to Tyhurst ("Tyhurst") and further in view of U.S. Patent No. 2,288,072 to Collins ("Collins") and U.S. Patent No. 5,317,037 to Golden, *et al.* ("Golden"). With respect to claim 12, it is asserted that the combination of the cited references teaches the claimed method. The Examiner admits that Chenoweth does not teach that the skin layer binder is a sugar. However, it is asserted that Collins discloses a method for making a fibrous product from glass wool fibers wherein a powdered sugar binder is disclosed and the binder is applied and selected in such a manner so as to adjust conditions such as toughness, hardness, rigidity, density, temperature resistance, and water-proofness. Additionally, the Examiner asserts that Golden provides evidence that sugars are known to be suitable as binders. The Examiner concludes that it would have been obvious to one of skill in the art to have employed sugar as the binder for forming the skin layer in the method disclosed by Chenoweth because Collins suggests that sugar is an art recognized binder. Golden is cited for disclosing specific sugars suitable for use as binders.

In response to this rejection, Applicant respectfully directs the Examiner's attention to independent claim 11 and to the arguments set forth above with respect to the rejection of claims 11, 15, and 16 under 35 U.S.C. §103(a) to Chenoweth in view of Kirk and Tyhurst and submits that claim 11 defines a method of forming a preform that is not taught or suggested within Chenoweth, Kirk, and/or Tyhurst, either alone or in combination. In addition, Applicant submits that the teachings of Collins and Golden fail to make up for the deficiencies of the combination of the cited references, namely, teaching feeding continuous strands of glass fibers into a preform mold. Collins and Golden both teach the use of a sugar as a binder, but are silent with respect to teaching or suggesting feeding continuous glass strands into a preform mold. As such, it is submitted that the combination of Chenoweth, Kirk, Tyhurst, Collins, and Golden does not teach or suggest Applicant's invention as recited in claim 11. Because claims 12-14 are dependent upon claim 11, which, as discussed above, is not taught or suggested by Chenoweth, Kirk, Tyhurst, Collins, and/or Golden, Applicant

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submits that claims 12-14 are also not taught or suggested by Chenoweth, Kirk, Tyhurst, Collins, and/or Golden.

Further, Applicant submits that there is no motivation for one of skill in the art to arrive at the presently claimed invention based on the disclosures of Chenoweth, Kirk, Tyhurst, Collins, and/or Golden. As discussed previously, in order to establish a *prima facie* case of obviousness, there must be some motivation, either within the reference or in the knowledge of those of skill in the art, to modify the reference or combine the references' teachings, there must be a reasonable expectation of success, and the prior art references must meet all of the claim limitations. (See, e.g., *Manual of Patent Examining Procedure*, Patent Publishing, LLC, Eighth Ed., Rev. 3, August 2005, §2142). It is respectfully submitted that one of ordinary skill in the art would not be motivated to arrive at the presently claimed process that includes feeding continuous strands of glass fibers into a preform mold based on the Examiner's combination of Chenoweth, Kirk, Tyhurst, Collins, and/or Golden. As discussed *supra*, Golden and Collins do not make up for the deficiencies of Chenoweth with respect to the claimed elements of claim 11. Without some teaching or suggestion within the four corners of the reference, there can be no motivation, and without motivation, there can be no *prima facie* case of obviousness.

In view of the above, Applicant respectfully submits that claims 12-14 are non-obvious and patentable over the combination of the Examiner's cited references and respectfully requests reconsideration and withdrawal of this rejection.

Rejection under 35 U.S.C. §103(a)

The Examiner has rejected claims 12-14 and 26 under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 4,751,134 to Chenoweth, *et al.* ("Chenoweth") in view of U.S. Patent No. 6,319,444 to Kirk ("Kirk") and U.S. Patent No. 4,210,230 to Tyhurst ("Tyhurst") and further in view of U.S. Patent No. 6,254,810 to Delvaux, *et al.* ("Delvaux") and U.S. Patent No. 6,800,364 to Chiu, *et al.* ("Chiu"). With respect to claims 12 and 26, it is asserted that the combination of the cited references teaches the claimed method. The Examiner admits that Chenoweth does not teach that the skin layer binder is a sugar. However, it is asserted that Chiu discloses the employment of a sucrose solution binder and Delvaux teaches the formation of a strong protective coating containing sugar. Additionally, Kirk teaches heating the mold prior to placing the binder into the mold. The Examiner

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concludes that it would have been obvious to one of skill in the art to employ a sugar solution such as a sugar solution taught by Chiu and Delvaux in the method disclosed by Chenoweth for the purpose suggested by Delvaux of providing an excellent protective cover for the fabric.

With respect to claim 13, it is asserted that Chenoweth teach activating the binder with heat and Kirk teaches the employment of hot air to melt the binder in a mold.

In response to this rejection, Applicant respectfully directs the Examiner's attention to independent claim 11 and to the arguments set forth above with respect to the rejection of claims 11, 15, and 16 under 35 U.S.C. §103(a) to Chenoweth in view of Kirk and Tyhurst and submits that claim 11 defines a method of forming a preform that is not taught or suggested within Chenoweth, Kirk, and/or Tyhurst, either alone or in combination. In addition, Applicant submits that the teachings of Chiu and Delvaux fail to make up for the deficiencies of the combination of the Examiner's cited references, namely, teaching feeding continuous strands of glass fibers into a preform mold. Although Chiu and Delvaux both teach the use of a sugar solution, Chiu and Delvaux are silent as to any teaching or suggestion of feeding continuous glass strands into a preform mold. As such, it is respectfully submitted that the combination of Chenoweth, Kirk, Tyhurst, Chiu, and Delvaux does not teach or suggest Applicant's process as claimed in claim 11. Because claims 12-14 and 26 are dependent upon claim 11, which, as discussed above, is not taught or suggested by Chenoweth, Kirk, Tyhurst, Chiu, and/or Delvaux, Applicant submits that claims 12-14, and 26 are also not taught or suggested by Chenoweth, Kirk, Tyhurst, Chiu, and/or Delvaux.

Additionally, Applicant submits that there is no motivation for one of skill in the art to arrive at the presently claimed invention based on the disclosures of Chenoweth, Kirk, Tyhurst, Chiu, and/or Delvaux. As discussed above, in order to establish a *prima facie* case of obviousness, there must be some motivation, to modify the reference or combine the references' teachings. (See, e.g., *Manual of Patent Examining Procedure*, Patent Publishing, LLC, Eighth Ed., Rev. 3, August 2005, §2142). It is respectfully submitted that one of ordinary skill in the art would not be motivated to arrive at the presently claimed process that includes feeding continuous strands of glass fibers into a preform mold based on the Examiner's combination of Chenoweth, Kirk, Tyhurst, Chiu, and/or Delvaux. As discussed *supra*, Delvaux and Chiu do not make up for the deficiencies of the cited prior art with respect to the feature of feeding continuous strands of glass fibers into a preform. Without

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some teaching or suggestion within the four corners of the reference, there can be no motivation, and without motivation, there can be no *prima facie* case of obviousness.

In view of the above, Applicant respectfully submits that claims 12-14 and 26 are non-obvious and patentable over the combination of the Examiner's cited references and respectfully requests that this rejection be reconsidered and withdrawn.

Rejection under 35 U.S.C. §103(a)

Claims 11, 15, and 16 have been rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 4,846,302 to Hetherington ("Hetherington") in view of U.S. Patent No. 6,319,444 to Kirk ("Kirk") and U.S. Patent No. 3,812,074 to Oswitch, *et al.* ("Oswitch"). The Examiner asserts that Hetherington teaches a method of forming a muffler wherein a binder hardened outer shell surrounds a soft fibrous core. It is asserted that the binder-hardened outer shell is formed by bringing the outer portion of the fibrous glass into contact with a binder and molding the fibers into the desired shape. The Examiner admits that Hetherington does not teach that the glass fibers are continuous or that the binder-hardened outer shell is formed by placing the binder in the internal wall of the preform mold prior to feeding the fibrous glass.

Kirk is cited for teaching that continuous glass fibers provides advantages of improved strength, higher service temperature, and lower levels of required binder than discrete length glass fibers. Kirk also assertedly teaches a heated mold to shape the product as desired.

Oswitch is cited for teaching a method of providing a hardened gel coating around the exterior of a fiber glass article by placing the binder, in the form of a pre-fabricated gel coat, on the internal wall of the preform mold prior to feeding the fibrous glass into the mold.

The Examiner concludes that it would have been obvious to one of skill in the art to have employed continuous glass fibers as suggested by Kirk in the method disclosed by Hetherington and to have formed the hardened outer shell by the method disclosed by Oswitch for the purpose of realizing the advantages of continuous glass fibers disclosed by Kirk and to have effectively formed the hardened outer shell in the art recognized equivalent alternative method as suggested by Oswitch.

In response to this rejection, Applicant respectfully directs the Examiner's attention to the amendments made to independent claim 11 and submits that claim 11, as amended,

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define a method of forming a preform that is not taught or suggested within Hetherington, Kirk, and/or Ostwich, either alone or in combination. In particular, Applicant has amended claim 11 to include the recitation of claim 12, which was not included in this rejection. Accordingly, Applicant submits that claim 11 is not taught or suggested by the Examiner's cited references and respectfully request that the Examiner reconsider and withdraw this rejection.

Conclusion

In light of the above, Applicant believes that this application is now in condition for allowance and therefore requests favorable consideration.

If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

If necessary, the Commissioner is hereby authorized to charge payment or credit any overpayment to Deposit Account No. 50-0568 for any additional fees required under 37 C.F.R. § 1.16 or under 37 C.F.R. § 1.17; particularly, extension of time fees.

Respectfully submitted,

Date: 10/16/07


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